

REMARKS

Status of the claims

Claims 1-51 are pending in the application. Claims 1, 6, 8, and 13 are currently amended. Claims 10, 12, 14, and 25-51 are canceled herein. Claims 1-24 stand rejected in the application. No new matter is added.

Amendment to the claims

Claim 1 is amended to incorporate the limitations of dependent claims 10, 12, and 14, which recite applying radiofrequency energy that generates a magnetic field to a substrate or a susceptor or a combination of substrate and susceptor, wherein the magnetic field induces the generation of heat (pg. 7, lines 19-26; and pg. 20, lines 10-14). Claim 6 is amended to recite a substrate is secured by a surgical fastener, laminate or a surgical fitting (pg. 17, lines 6-8). Claim 8 is amended to recite a substrate is secured by an adherend (pg. 17, lines 7-8).

35 U.S.C. §102 rejections

Claims 1-7, and 19-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by **Gifford, III et al.** (USPN 6,171,321). Applicant respectfully traverses the rejection.

Regarding independent claim 1 the Examiner argues the instant invention is anticipated by **Gifford, III et al.** col.48, line 15-col.49, line 3, and Figs. 38A-39C.

The currently amended claim 1 of the instant invention recites a method of treatment for one or more substrates in an individual through securing a substrate proximal to a susceptor, and applying radiofrequency energy that generates a magnetic field to the substrate, susceptor, or a combination thereof, to inductively generate heat and effect treatment by fixing the substrate by heat.

To anticipate amended independent claim 1 and dependent claims 2-7, and 19-20, **Gifford, III et al.** must teach every element recited in the instant claims. The Applicant submits that **Gifford, III et al.** do not teach use of radiofrequency energy to create a magnetic field nor teach use of radiofrequency energy of a specific frequency that is applied in pulses. As well, **Gifford, III et al.** do not teach the composition of the susceptor is such that it has non-zero electrical conductivity, and magnetic properties, i.e., paramagnetic, diamagnetic, or

ferromagnetic, whereby exposure of the susceptor to a magnetic field generates heat due to excitation of the electrons within the susceptor material. Furthermore **Gifford, III et al.** do not teach the susceptor is inductively heated, such that heating occurs through a non-contact process by electrical currents induced in a susceptor, which is composed of electrically conductive material(s), by the application of a magnetic field.

The Applicant submits **Gifford, III et al.** teach a system for performing an end-to-side vascular anastomosis, including an anastomosis device, an application instrument, and methods for performing a vascular anastomosis (Abstract). **Gifford, III et al.** teach the use of a stapling device to compress the staple to form the anastomosis seal in the tissue. Thus, **Gifford, III et al.** disclose use of mechanical energy, i.e. compression, not heat energy. Alternatively, **Gifford, III et al.** teach the anastomosis device using a shape-memory alloy with staple legs (483) straightened out (col. 48, lines 56-62), which return to their original bent shape upon exposure to body heat, (col. 48, lines 66-67, and col. 49, lines 1-3). Thus the heat specified in **Gifford, III et al.** is generated by an individual's body, and is not generated inductively in a non-zero electrically conductive material with magnetic properties by proximity to a magnetic field, where the field activates electrons in the material and induces heat. As discussed *supra* **Gifford, III et al.** do not teach the claim elements as in the instant claims, therefore **Gifford, III et al.** do not anticipate the instant invention under 35 U.S.C. §102(b). Consequently, in view of the arguments presented herein, Applicant respectfully requests the standing rejection of claims 1-7, and 19-20 under 35 U.S.C. §102(b) be withdrawn.

Claims 1, 8-14, and 19-24 stand rejected under 35 U.S.C. §102(e) as being anticipated by **Naghavi et al.** (USPN 6,451,044). Applicant respectfully traverses the rejection.

The Examiner argues independent claim 1 of the instant invention is anticipated by **Naghavi et al.** abstract, col. 11, line 52- col. 15, line 67, and Figs. 1-12.

To anticipate amended independent claim 1 and dependent claims 8-14, and 19-24, **Naghavi et al.** must teach each claim element recited in the instant claims. **Naghavi et al.** do not teach the use of radiofrequency energy, or the use magnetic fields to generate heat. Moreover, **Naghavi et al.** do not teach the induction of heat generated by a magnetic field in a susceptor or substrate, which is composed of materials with magnetic properties that are excitable at the electron level by a magnetic field.

The Applicant submits **Naghavi et al.** teach methods for selectively inducing apoptosis in inflammatory immune cells by heating cells through the use of an ultrasonically-heated stent (Abstract). Furthermore, **Naghavi et al.** teach away from the instant invention's use of a magnetic field due to the adverse effects of magnetic fields on other metallic objects in the body, such as pacemakers, and on biological tissues, such as ionization of biomolecules (col 8, lines 40-48). As well, **Naghavi et al.** teach use of ultrasound beams at frequencies of 1MHz, to generate heat in ultrasound-absorptive materials at faster rates than in living soft tissue (col 12, lines 60-67). Thus, **Naghavi et al.** use a completely different method of heat source and means of generating heat than is recited in the instant claims. Therefore, **Naghavi et al.** do not anticipate the instant invention, under 35 U.S.C. §102(e). Accordingly, in view of the arguments presented herein, Applicant respectfully requests the rejection of claims 1, 8-14, and 19-24 under 35 U.S.C. §102(e) be withdrawn.

Claim Rejections under 35 U.S.C. §103

Claims 15-18 stand rejected under 35 U.S.C. §103(a) as being obvious over **Naghavi et al.** (USPN 6,451,044) and further in view of **Kasevich et al.** (USPN 5,057, 106). Applicant respectfully traverses the rejection.

Regarding claims 15-18, the Examiner argues that **Naghavi et al.** disclose the use of microwave radiation to heat the stent as an alternative to ultrasound (col 11). **Naghavi et al.** fail to disclose the use of an antenna, having a solid wire in the form of a coil. **Kasevich et al.** disclose an energy application catheter and teach the use of an electrically conductive wire in the form of a helix in order to radiate microwave energy (col 1-2). Therefore the Examiner concludes at the time of the invention it would have been obvious to one skilled in the art to modify the invention of **Naghavi et al.** as taught by **Kasevich et al.** to provide the device with a helix microwave antenna in order to deliver heating energy.

The Applicant submits the currently amended independent claim 1 and dependent claims 15-18 recite a method of treatment for a substrate in an individual through proximity to a susceptor that has magnetic properties. The susceptor is induced to heat and fix the substrate due to exposure of the susceptor to a magnetic field generated by radiofrequency energy. The generation of the magnetic field is produced by use of a single-coil, double-coil or solenoid antenna that is comprised of a solid wire or hollow tubing coil of an electrical conductor.

The Applicant submits **Naghavi et al.** teach a method to selectively kill cells in the body by use of a stent heated by ultrasound beams, electricity, microwave, or radiofrequency radiation. As discussed *supra*, **Naghavi et al.** do not teach a method of heating a substrate through the use of a pulsed radiofrequency energy generated magnetic field and a susceptor. As well, **Naghavi et al.** do not disclose use of susceptor materials that have magnetic properties, which are then excited at the electron level by the magnetic field to generate and transmit heat to the substrate. Furthermore, **Naghavi et al.** do not disclose the use of a single-coil, double coil or solenoid antenna to generate a magnetic field using radiofrequency energy. Thus **Naghavi et al.** is deficient in suggestion or motivation to one of ordinary skill in the art to modify a microwave- and/or ultrasound-heated stent to the instant invention that uses radiofrequency energy to generate a magnetic field that induces heat in a susceptor having magnetic properties, whereby the induced heat fixes a substrate.

The Applicant submits **Kasevich et al.** teach a system to heat arterial plaque using a microwave catheter or RF system (col 1, lines 66-68). Further, **Kasevich et al.** teach use of the antenna to transmit the microwave energy to the catheter to generate heat.


The Applicant submits that **Kasevich et al.** do not disclose a method to generate heat in a susceptor by a magnetic field. As well **Kasevich et al.** do not disclose use of susceptor material that has magnetic properties, nor teach use of heat that is inductively generated by the electron excitation of the susceptor by proximity to a magnetic field. Therefore **Kasevich et al.** would not motivate one of ordinary skill in the art to modify a microwave-heated catheter to produce the instant invention.

Combining **Naghavi et al.** and **Kasevich et al.** do not remedy the deficiencies of the references singly. Both **Naghavi et al.** and **Kasevich et al.** teach using microwave energy to generate heat and do not teach use of magnetic properties in a susceptor that is heated by exposure to a magnetic field. Thus, **Naghavi et al.** and **Kasevich et al.** do not provide motivation, or a reasonable expectation of success, or suggest the instant claim limitations, to one of ordinary skill in the art to modify to the instant invention. Therefore the subject matter of the instant claims are not rendered obvious by **Naghavi et al.** and **Kasevich et al.** Accordingly, in view of the arguments presented herein, Applicant respectfully requests that the rejection of claims 15-18 under 35 U.S.C. §103(a) be withdrawn.

This is intended to be a complete response to the Office Action, mailed August 15, 2007. If any issues remain outstanding, the Examiner is respectfully requested to telephone the undersigned attorney of record for immediate resolution. Applicant encloses a Petition for a Two Months Extension of Time. Please charge the \$230 fee to the credit card identified on the enclosed Form PTO-2038. Only in the absence of Form PTO-2038, please debit any applicable fees from Deposit Account No. 07-1185 upon which the undersigned is allowed to draw.

Respectfully submitted,

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